

Twin Water Softening System

Water softening involves the use sodium form cation exchange resins in an ion exchange column to exchange hardness causing ions such as calcium, magnesium and barium, etc.

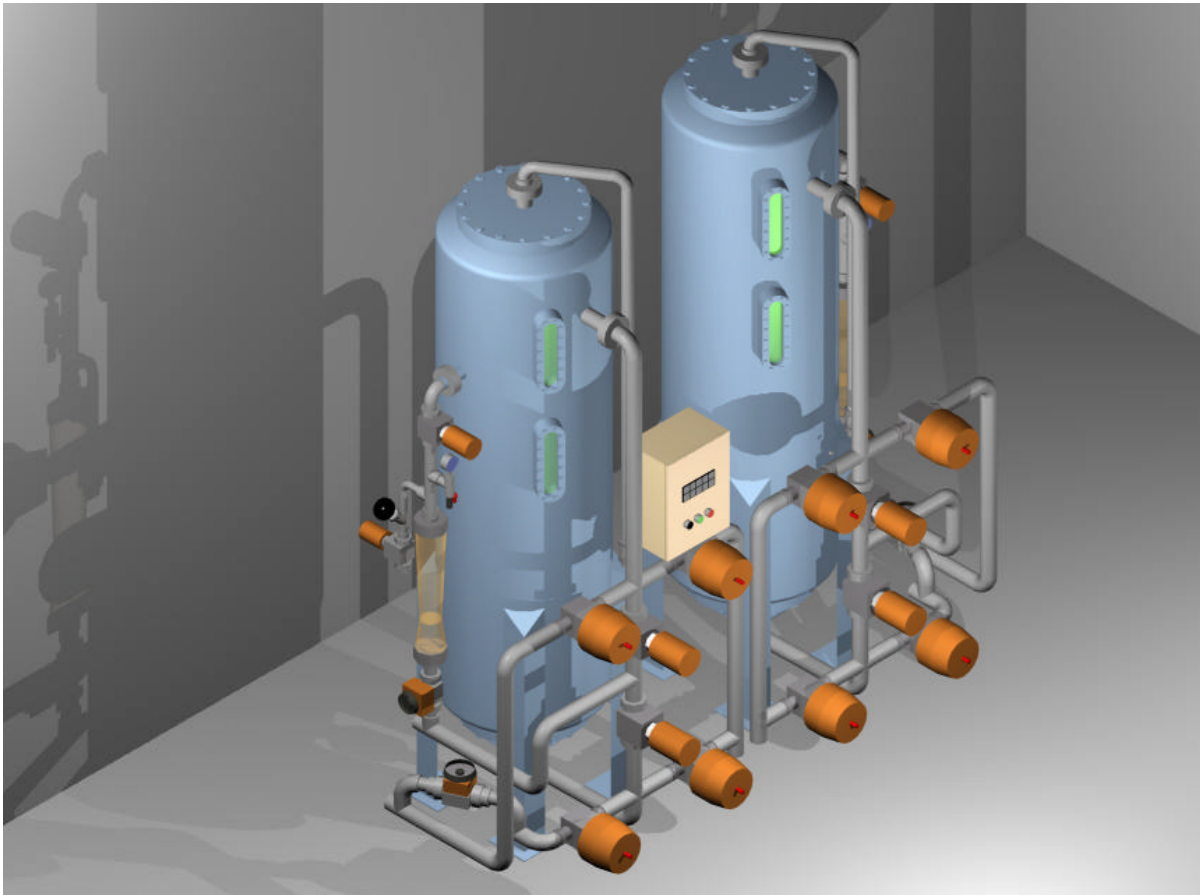
Hard water - water containing calcium and magnesium ions is admitted to the ion - exchange column.

Before being contacted by the water, the resin particles have associated with them only mobile, replaceable sodium cations and fixed, irreplaceable anions. There are, of course, thousands of particles in a typical exchanger unit, each particle containing not just a few ions, but literally billions.

Exchange is initiated. Some of the calcium and magnesium ions are adsorbed by the resin, which in turn, releases sodium ions. Two sodium ions are released for each calcium or magnesium ion.

The resins particle is exhausted of its sodium ions; now contains calcium and magnesium. In actual practice, a few sodium ions generally remain on the exchanger.

The effluent water is now soft - does not contain hardness producing cations. The resin bed may now be regenerated by adding to it a solution containing sodium ions - most frequently, sodium chloride.



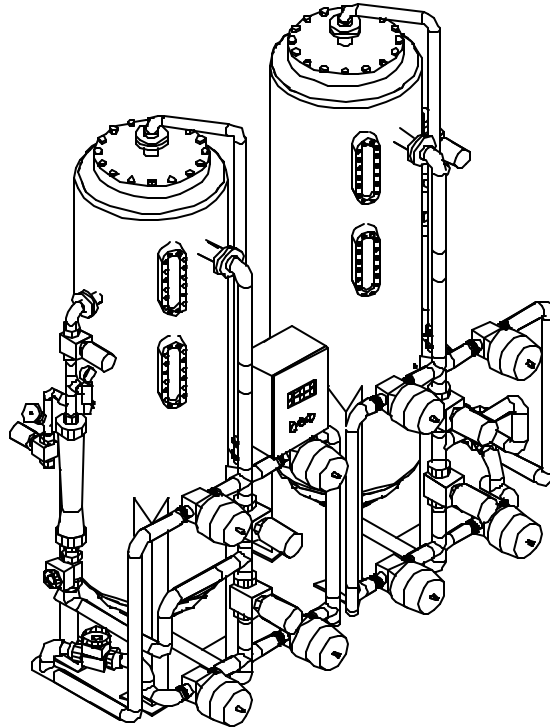
24" TWIN SOFTENING SYSTEM

Standard Features

- Rubber lined carbon steel vessels designed for 7 bar working pressure.
- Sight glass to permit visual inspection of resin level and backwash flow.
- PVC SCH 80 face piping and valves.
- Separate regeneration distributors for efficient distribution of regenerant flow.
- Flow controllers for backwash flow rate control.
- PVC Pneumatic Control valves.
- Feed water rotameter.
- Regeneration flow rotameters.
- Inlet and Outlet pressure gauges.
- PVC eductors for regenerant introduction.
- Sampling ports for brine concentration.
- Sampling cylinders for non-hazardous sampling.
- Programmable Logic Controller.
- NEMA 4X Control panel for electrical and solenoid valves.
- Indicator lights to show each regeneration step.
- Automatic and manual step through of each regeneration steps.

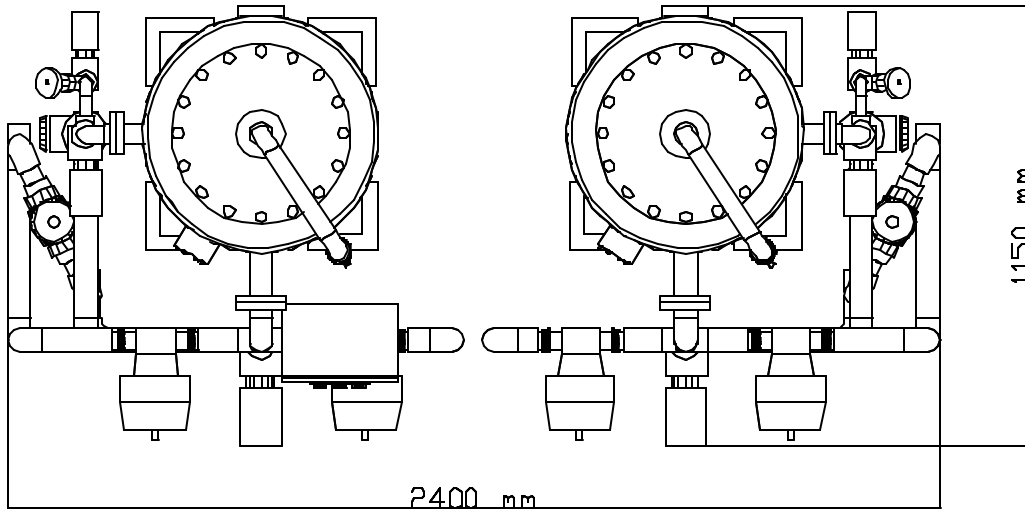
Optional Features

- Electronic flow meter (Optional)

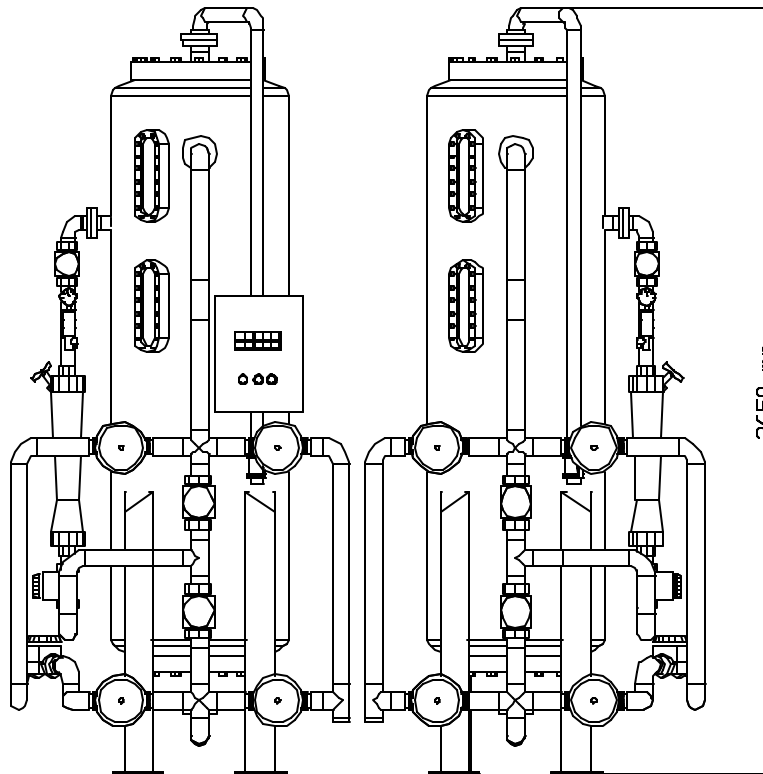


ISOMETRIC VIEW

Dimensions



PLAN VIEW



FRONT VIEW

Specifications

| | |
|--|--|
| Operation Mode | Automatic Twin Softening System |
| Model | TS 24 |
| Cation Exchange Resins | Strong Acidic Na ⁺ |
| Operating Data Flow rate: Minimum Normal Maximum Operating Pressure | 14 gpm 30 gpm 40 gpm 7 bar (100 psi) |
| Ion Exchange Data Cation resins, ft ³ Exchange Capacity (Nominal) | 9.7 (275 liters) 298 kgrains as CaCO ₃ |
| Regenerant Chemicals Cation resins, 100% NaCl, lb Approx. gals. 26% NaCl | 150 58 |
| Dimensions Diameter, mm Height, mm Floor Space, mm | 610 2650 1150 x 2400 x 2650 |

| Regeneration Waste Water Volumes (Cation Resin Bed) | | | | | |
|---|------------|--------------|----------------|-----------------|--------------------------|
| Regeneration Phase | Flow Rates | | | Total Time Min. | Total Gallons Each Phase |
| | Water GPM | 26% NaCl GPM | Total Flow GPM | | |
| Backwash | 19 | | 19 | 15 | 285 |
| Regenerant Introduction | 3.3 | 1.7 | 5 | 33 | 165 |
| Slow Rinse | 3.3 | | 3.3 | 30 | 99 |
| Fast Rinse | 31 | | 31 | 9.5 | 295 |
| Total Waste Volume | | | | | 844 Gallons |

NOTES:

Sodium chloride introduction is based on use of 26% NaCl solution during regeneration. Concentration at resin bed is 10% NaCl solution. Total rinse volume is affected by the quality and temperature of the rinse water supply, the product water purity required by the customer for service use. Due to these variables, total time and gallons for final rinse can only be determined during actual operation and may vary for each regeneration.